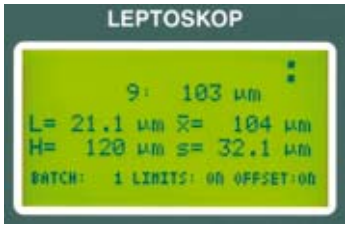
LEPTOSKOP® 2041

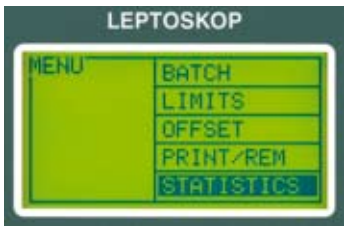
Coating Thickness Measurement

KARL DEUTSCH

LEPTOSKOP® 2041 – Precision Measurements



Simultaneous indication of measured data and statistical evaluation



Easy operation by clear menu guidance

Scope of supply

Sets and scope of supply

	Order No.
LEPTOSKOP 2041	2041.001
Scope of supply: instrument with battery, instruction manual, quality certificate, transport case	
Standard sets	
Standard set Fe	2041.901
Standard set NFe	2041.902
Standard set Fe/NFe	2041.905
Standard sets additionally contain: Standard probe(s), calibration blocks, calibration foil set	
Data sets	
Data set Fe	2041.903
Data set NFe	2041.904
Data set Fe/NFe	2041.906
Data sets additionally contain: Standard probe(s), calibration blocks, calibration foil set, PC cable, PC software STATWIN 2002	

Do you want to solve your various measuring tasks flexibly and individually with only one instrument?

In this case, we recommend the LEPTOSKOP 2041 with its great variety of plug-in probes and micro probes and with a large data memory. The brand name LEPTOSKOP® represents an experience for decades in development of precise and reliable coating thickness gauges of the KARL DEUTSCH company.

LEPTOSKOPs measure precisely and comfortably according to the

Magnetic-inductive method (EN ISO 2178)

For all non-magnetic coatings on (ferro-) magnetic substrates (Fe) such as lacquer, paints, powder lacquer, enamel, plastics, zinc, chromium, copper on e.g. iron and steel.

Eddy-current method (EN ISO 2360)

For all non-conductive coatings on (electrically) conductive substrates (NFe) such as lacquer, paints, powder lacquer, anodized layers, plastics, on e.g. aluminium, copper, brass, etc.

All Advantages of the LEPTOSKOP 2041 at a Glance:

- Large choice of plug-in probes
- Automatic identification of each probe
- Easy, menu-guided operation
- High-capacity data memory and large illuminated display
- Statistical online evaluation of measuring results (mean value, min./max., standard deviation, etc.)
- Data interface for transfer and further processing of the measured data in a PC or for data output via a printer
- Calibrated ex works and directly ready for measurement
- Two-point calibration possible
- Monitoring of limit values
- Standby function to save battery power
- Flexible memory for 7700 measured values
- Calibration also possible if no uncoated workspiece is available (Cal-X-method)
- Local coating thickness
- Operation with batteries or mains power supply
- Measuring range between 0 – 20000 µm, depending on the probe being used

Technical Data LEPTOSKOP 2041

Display	Approx. 55 mm x 28 mm, illuminated
Measuring principle	Fe-measurement: Magnetic-inductive method (EN ISO 2178) NFe-measurement: Eddy-current method (EN ISO 2360)
Measuring range	0 - 20000 µm, depending on the used probe
Calibration	Zero calibration, one- and two-point calibration on non-coated substrate, calibration on coated substrate (if no non-coated material is available) or works calibration
Uncertainty of measurements (after calibration)	For coatings < 100 µm: 1 % ± 1 µm For coatings > 100 µm: 1..3 % ± 1 µm For coatings > 1000 µm: 1..5 % ± 10 µm For coatings > 10000 µm: 1..5 % ± 100 µm
Interface	RS 232
Measuring Units	µm, mm or mils
Storage capacity	Up to 7700 measured values within up to 600 groups
Statistics	Minimum, maximum, mean value, number of measured values, standard deviation, limit value monitoring, offset Local coating thickness and average coating thickness according to EN ISO 2808
Date and time	Real-time clock, battery-buffered
Power supply	2 pc. alkali-manganese batteries (operating time 26 hours without illumination), rechargeable batteries or mains operation (optionally)
Battery charge indication	Acoustic alarm
Housing, weight	83 mm x 151 mm x 35 mm, 264 g (9.31 oz)

LEPTOSKOP Probes –
A Solution for Every Measuring Task

The LEPTOSKOP 2041 is equipped with exchangeable plug-in probes, which are designed either for Fe- or NFe-substrates. From the overview given below, for most measuring tasks a suitable probe can be selected.

Do you need our support for solving a special measuring problem ? Our experienced experts will give you full support for the optimum probe selection for your individual measuring task.

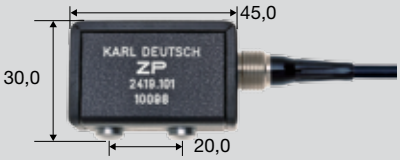
Criteria for an Optimum Probe Selection:

- The **combination** of coating and substrate materials. This implies the measuring method: Eddy-current method or magnetic-inductive method.
- The **thickness** of coating. This is essential for the choice of the required measuring range.
- The **geometrical shape** and the **size** of the measured object. They determine the probe type: standard or micro probe, straight or angled design.

Micro-probes produce precise results even from hard-to-access areas.

Laboratory application

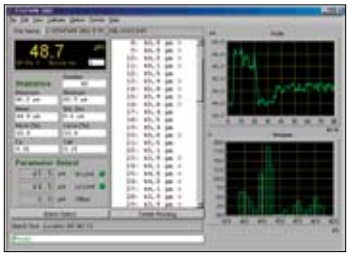
Probe Overview with Technical Data and Ordering Numbers

Picture (dimensions in mm)	Probe Type	Fe / NFe	Measuring Range selectable µm / mil	Ordering number
	Standard probe Fe 0° for all measurements on large, well-accessible areas	Fe	0 – 4750 µm / 190 mil	**2418.104**
	Standard probe NFe 0° Standard probe NFe S 0°	NFe NFe	0 – 1000 µm / 40 mil 0 – 3750 µm / 150 mil	**2418.201** **2418.401**
	Standard probe Fe S 0° for measurements of thicker coatings	Fe	0.5 – 20 mm / 800 mil	**2418.304**
	Standard probe Fe 90° for measurements on hard-to-access areas (e.g. internal tube wall)	Fe	0 – 4750 µm / 190 mil	**2418.106**
	Two-pole probe for measurements of thicker coatings (e.g. internally cladded tube wall)	Fe	0.5 – 12.5 mm / 20 – 500 mil	**2419.101**
	Micro probe 0° for measurements on small surfaces and on hard-to-access areas (e.g. on bottom of drilled holes)	Fe NFe	0 – 500 µm / 20 mil 0 – 500 µm / 20 mil	**2420.104** **2420.201**
	Micro probe 45° for measurements on small surfaces and on hard-to-access areas	Fe NFe	0 – 500 µm / 20 mil 0 – 500 µm / 20 mil	**2420.105** **2420.202**
	Micro probe 90° for measurements on small surfaces and on hard-to-access areas (e.g. on internal tube walls and drill holes)	Fe NFe	0 – 500 µm / 20 mil 0 – 500 µm / 20 mil	**2420.106** **2420.203**

LEPTOSKOP® 2041 – Accessories

Accessories for the LEPTOSKOP 2041

Accessories	Description		Order No.
Software: STATWIN 2002	This software[1] enables the transmission, evaluation, storage, and processing of measured data on the PC. By means of additional export functions, the measured values can also be further processed by other programs (e.g. MS Excel). For detailed informations, we recommend our separate product leaflet for STATWIN 2002. [1] for the operating systems Windows 95/98/XP/ME/2000/NT4.0		2904.001
Calibration blocks	Depending on application, ferro-magnetic (iron) and non-ferro-magnetic calibration blocks are available.	Calibration block Fe Calibration block Fe, large (for two-pole probe + standard probe Fe S 0°) Calibration block NFe	2815.001 2815.002 2815.003
Calibration foils	Foils of a precise thickness enable a reliable and accurate calibration of the LEPTOSKOPs. Depending on the measuring range, different foil sets are available.	Foil set range < 1250 µm Foil set range 1250 to 4750 µm Foil set range 0.5 to 12.5 mm Precision calibration foil set 0 – 1250 µm Calibration block 15 mm thickness	2715.001 2715.004 2715.002 2715.003 2715.151
Positioning device	For all Fe- and NFe-micro probes. With this pneumatically damped positioning device, a very high precision of positioning and repeatability can be obtained. Scope of supply contains holding devices for 0°-, 45°-, and 90°-probes.		2820.002
Positioning aids for micro-probes	With these positioning aids, errors caused by non-vertically placed probes are avoided.	Positioning aid 0° : Positioning aid 45°: Positioning aid 90°:	2998.001 2998.002 2998.003
Battery charger	For recharging of batteries within the instrument (NiCd and NiMH); to be connected to a 230 V respectively to a 110 V power supply. The batteries need not be removed from instrument for re-charging.	Battery charger 230 V Battery charger 110 V	2806.001 6018.001
Battery printer	RS 232, including mains/charging device (230 V) RS 232, including mains/charging device (110 V)		6010.001 6010.101
Printer cable	Cable for connection of the LEPTOSKOP 2041 with the battery printer 6010.001		1657.305
PC-cable	Cable for connection of the LEPTOSKOP 2041 with a PC/Laptop with serial interface, incl. adapter (D-sub, 9 to 25 poles).		1657.307
USB-adapter cable	Cable for connection of the LEPTOSKOP 2041 to the USB-interface of a PC/Laptop, incl. driver-CD for operating systems Windows 98/ME/2000/XP.		2691.001
Probe cable extension	2 m extension of the probe cable		2632.001
Battery set	NiMH battery set, 2 x 1.2 V (size AA, with extended capacity: 2000 mAh min.)		6016.001
Protective pouch	Leather pouch with window for display and control panel, mechanical protection for transport and operation		4825.001



STATWIN 2002 operating surface


Set of calibration foils


Positioning device

Positioning aids for micro-probes


Battery printer

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DIN EN ISO 9001:2000 certified

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